

of other insects; and a posterior and larger part, which corresponds to the other thoracic ganglia and to some abdominal ganglia. The anterior division supplies nerves to the organs of the mouth (like the *ganglion infraesophageum*) and to the first pair of legs. The posterior and larger division of this ganglion supplies nerves to the second pair of wings, to the thorax, and to different segments of the abdomen.

3. The abdominal division of the nervous system consists of one abdominal ganglion, situated in the last third of the body. It is oval, and is connected with the thoracic ganglion by means of a long and thin cord. From this ganglion spring three pairs of nerves, of which the first and second pairs branch out in the fifth and sixth segments of the abdomen, while the last pair branch out in the last segment of the abdomen and in the rectum.

This nervous system is as curious as that of some Coleoptera* (*Rhizotrogus solstitialis*, *Serica brunnea*) and some Hemiptera (*Hydrometra lacustris*), as it has no *ganglion infraesophageum*.

LIII.—*Account of the Reptiles and Batrachians collected by Mr. Edward Whymper in Ecuador in 1879–80.* By G. A. BOULENGER†.

THE collection of Reptiles and Batrachians kindly placed in my hands by Mr. Whymper, though containing no striking novelties, is interesting on account of the care bestowed by its collector in recording the exact locality from which every specimen was obtained. I will therefore mention all the specimens contained in this collection. Four species appear to be new to science.

REPTILIA.

CHELONIA.

1. *Cinosternon*, sp.

Two very young, dried specimens, the dorsal shield 24

* Ed. Brandt, 'On the Nervous System of the Lamellicornia,' St. Petersburg, 1878 (in Russian).

Ed. Brandt, 'Researches into the Comparative Anatomy of the Nervous System of the Hemiptera,' St. Petersburg, 1878 (in Russian).

† This paper was ready for the press in November 1881; but the execution of the woodcuts has delayed its publication. In the meanwhile the descriptions of the new frogs have been published in the British-Museum 'Catalogue of Batrachia Ecaudata.'

millim. long, too small and too badly preserved to be properly identified. From Nanegal (3000 feet).

These tortoises are closely allied to *C. leucostomum*, A. Dum., which occurs in Colombia; but the axillary and inguinal shields are in contact, as in *C. integrum*, Leconte, from Mexico.

This is, I believe, the first time that a *Cinosternon* is recorded from Ecuador.

LACERTILIA.

2. *Gymnodactylus caudiscutatus*, Gthr.

Guayaquil. One half-grown specimen.

3. *Anolis chrysolepis*, Dum. & Bibr.

Tanti (2000 feet). One ♀ specimen.

4. *Anolis de Villei*, Blgr.

Nanegal (3000 feet). One ♂ specimen.

5. ?*Anolis squamulatus*, Peters.

Anolis squamulatus, Peters, Monatsb. Ak. Berl. 1863, p. 145; Bocourt, Miss. Sc. Mex. pl. xiv. fig. 21.

Milligalli (6200 feet). One ♀ specimen, measuring from snout to vent 65 millim.

As regards the pholidosis and proportions of the head, this specimen agrees perfectly with Bocourt's figure. The ventral scales are smooth, as stated by the latter, though Peters says "Bauchschuppen rund, glatt oder deutlich gekielt." It differs from Peters's description in the following points—median dorsal scales not keeled, smaller size, coloration: this is dull lilac, minutely and indistinctly speckled with blackish. *A. squamulatus* is known from Puerto Cabello and Panama.

6. *Liocephalus trachycephalus*, A. Dum.

Five specimens from Otovalo (8460 feet), one from the road from Quito to Guallabamba (8500 feet), two from the road between Guallabamba and Guachala, one from Ambato (8630 feet), thirteen from Machachi (9000–10,000 feet), two from La Dormida, Cayambe mountain (10,000 feet), and one from Hac. S. Rosario (10,360 feet), on the lower slopes of Illiniza.

7. *Liocephalus iridescens*, Gthr.

Guayaquil. One specimen.

[Of the genus *Liocephalus* five species, two of which are recent additions to science, are known from Ecuador. They may be distinguished in the following way :—

I. Ventral scales smooth, or nearly so.

1. Palpebral shields small; all the head-shields keeled.

Dorsal scales large, very strongly keeled; three of them, taken from the middle of the side, correspond to the vertical diameter of the ear-opening . . . *ornatus*, Gray.

Dorsal scales moderate; four of them correspond to the vertical diameter of the ear-opening *trachycephalus*, A. Dum.

2. A series of broad palpebral shields; head-shields smooth, or slightly keeled.

Front edge of the ear slightly toothed; scales of the lower surface of the tail strongly keeled *iridescens*, Gthr.

Front edge of the ear rather strongly toothed; scales of the lower surface of the tail feebly keeled *formosus*, Blgr.

II. Ventral scales very strongly keeled; head-shields large *aculeatus*, O'Shaughn.]

8. *Ameiva sexscutata*, Gthr.

Tanti. Two specimens (♀ and h.gr.).

9. *Cercosaura Gaudichaudi* (Dum. & Bibr.).

Five specimens from Hac. Olalla, plain of Tumbaco (8490 feet), three from Chillo (9000 feet), and one from Pichincha (11,000 feet).

10. *Proctoporus unicolor* (Gray).

Three specimens from Hac. Olalla, and four from Chillo. A small median occipital shield is frequently present.

11. *Amphisbena fuliginosa*, L.

One specimen from Guayaquil, and another from Tanti.

O PH ID IA.

From the interior of Ecuador Mr. Whymper obtained only two snakes, belonging to two species, viz. *Liophis alticolus* and *Leptognathus nebulatus*; and he observes :—“The most intelligent persons I could question declared that snakes did not exist; and the surprise and curiosity which these two specimens excited amongst the natives showed that they were rare.” In his paper on the reptiles collected by the Orton expedition Prof. Cope mentions no less than nine species of

snakes from the "valley of Quito." This is in contradiction with what Orton himself says:—"During a residence of nearly three months in the Quito valley we saw but one snake" ('The Andes and the Amazon,' English edition, p. 107).

12. *Boa constrictor*, L.

Guayaquil. One young specimen.

13. *Homalocranium melanocephalum* (L.).

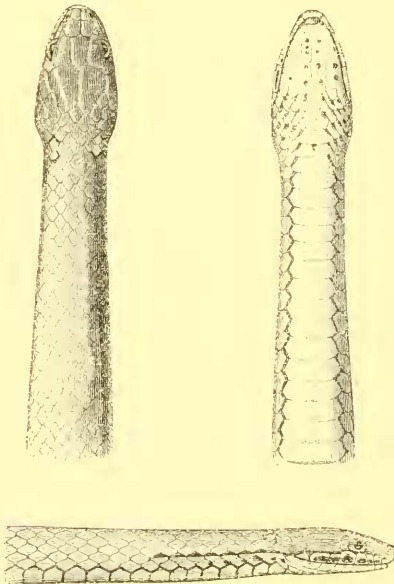
Milligalli (6200 feet). One specimen.

14. *Coronella doliata* (L.), var. *formosa*, Jan.

Guayaquil. One specimen, with undivided anal and twenty-three rows of scales.

15. *Coronella Whymperi*, sp. n.

Habit of *Coronella austriaca*. Head moderate; snout short,



Coronella Whymperi, Blgr.

its length not quite twice the diameter of the eye. Rostral moderate, not advancing on the internasals; latter longer than broad; frontal as long as its distance from the tip of the snout, its front edge nearly straight; parietals longer than frontal, narrowed and including a considerable notch behind. Eight supero-labials, fourth and fifth entering the eye; one preocular, two postoculars, lower smaller than upper; a single anterior temporal; eight inferior labials, five in contact with mentals; latter, hinder pair longest. Scales in seventeen rows. Gastrosteges 154 or 156; anal bifid; urosteges 55 or 66. Brown above, upper half of supero-labials yellowish, lower half blackish; a black streak from the eye along the side of the neck; a light black-edged spot on each side of the nape; a rather indistinct, interrupted, yellowish line along each side of the front half of the body, between the fifth and sixth rows of scales; a black stripe along the middle of the tail and of the hind part of the back; yellow or brownish-yellow beneath; outer edge of gastrosteges and urosteges, and sometimes front edge of former, black.

Length of the two specimens:—Head and body 514, 410 millim.; tail 127, 135 millim.

Milligalli. Two specimens.

This species bears a close resemblance to *Coronella decorata*, Gthr. (Cat. Colubr. Sn. p. 35), from Mexico, but differs in the narrower internasals, shorter tail, size, and coloration.

[Having compared the type specimens of *C. decorata*, Gthr. (1858), with the figure of *Enicognathus vittatus*, Rapp, MS. (Jan, Arch. per la Zool. ii. fasc. ii. p. 61, 1863; and Iconogr. gén. Ophid. livr. 16, pl. ii.), I am convinced that the two species are identical.]

16. *Liophis reginæ* (L.), var. *albiventris*, Jan.

Two adult and two young from Milligalli, and one half-grown from Tanti.

The var. *quadrilineatus*, Jan, is represented by two specimens, which are evidently the adult state of var. *albiventris*.

17. *Liophis alticolus*.

Ophcomorphus alticolus, Cope, Proc. Ac. N. S. Philad. 1868, p. 102.

Olalla, near Tumbaco (8490 feet). One fine specimen, which was brought in to Mr. Whymper alive, and excited much curiosity amongst the natives.

18. *Liophis splendens*, Jan.

Hacienda of Palmira, Nanegal (3000 feet). One specimen.
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19. *Herpetodryes brunneus*, Gthr.

Guayaquil. One specimen.

20. *Oxyrhopus clalica* (Daud.).

Hacienda of Palmira, Nanegal. One specimen, with only seventeen rows of scales, and without loreal shield.

21. *Oxyrhopus petalarius* (L.).

Guayaquil. One specimen.

22. *Himantodes cenchoa* (L.).

Guayaquil. One specimen.

23. *Elaps maregravi*, Wied, var. *ancolaris*, Jan.

Nanegal. One specimen.

24. *Elaps lemniscatus* (L.).

Guayaquil. One specimen.

25. *Leptognathus nebulatus* (L.).

Ibarra (7300 feet). One half-grown specimen, which was brought in to Mr. Whympfer alive.

26. *Bothrops atrox* (L.).

Two young specimens from Nanegal, and another from Mindo, W. of Quito (4150 feet).

27. *Bothrops Schlegeli* (Berthold).

Two adult specimens from Bologna, and two young from S. Domingo de los Colorados.

I do not think that *Lachesis nitidus*, Gthr. (1859), is specifically different from *Trigonocephalus Schlegeli*, Berthold.

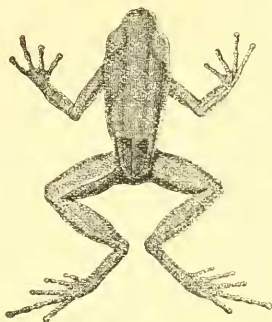
BATRACHIA.

ECAUDATA.

28. *Prostherapis Whympferi*, sp. n.

Snout depressed, projecting, truncate, with angular canthus rostralis; loreal region nearly vertical; nostril nearer the tip of the snout than the eye; the greatest diameter of the orbit equals the length of the snout; interorbital space broader than the upper eyelid; tympanum perfectly distinct, two thirds the breadth of the eye. First and second fingers equal; toes

quite free; disks of fingers and-toes small; subarticular and inner metatarsal tubercles indistinct; no outer metatarsal



Protherapis Whympersi, Blgr.

tubercle. The hind limb being carried forwards along the body, the tibio-tarsal articulation marks the anterior border of the eye. Skin everywhere perfectly smooth. Blackish; throat and belly marbled with grey; lower surface of hind limbs greyish, of arms whitish. An internal subgular vocal sac. From snout to vent 24 millim.

Tanti, 2000 feet. A single (δ) specimen.

This small frog is closely allied to *P. inguinalis*, Cope, hitherto the unique species of the interesting genus *Protherapis*, Cope. The British Museum having recently received the latter from Ecuador (Sarayacu and Canelos) through Mr. Buckley, I have been able to compare it with this new form; and I have no doubt they are perfectly distinct from each other. In *P. inguinalis* the tympanum is hidden, the first finger is longer than the second, the digital expansions are larger, there is an outer metatarsal tubercle, and the upper lip is margined with white.

29. *Dendrobates tinctorius* (Schneid.).

Two specimens from Tanti.

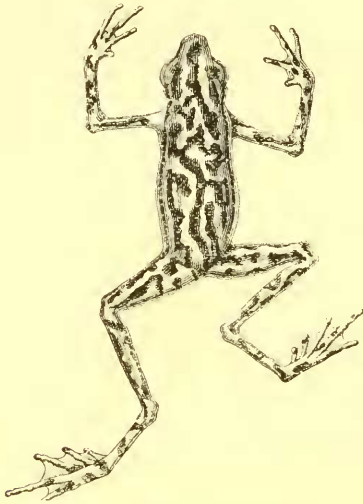
30. *Phryniscus lavis*, Gthr.

Four specimens collected on the road from Latacunga to Machachi (9000–10,000 feet); five young from the Panecillo, Quito (9500 feet); one young from Hacienda of Guachala (9200 feet); and an adult from Riobamba (9000 feet).

Of this frog, Mr. Whympers says it "is one of the most widely distributed, I think the most widely distributed, in

Ecuador. I have seen it almost everywhere from 7000 feet above the sea to 13,500 feet. We could have obtained thousands of specimens if there had been any object in doing so."

31. *Phryniscus elegans*, sp. n.



Phryniscus elegans, Blgr.

Head small, its length nearly one third that of the body; snout prominent, truncate, not pointed, a little longer than the diameter of the eyeball; canthus rostralis angular; loreal region vertical; rostral nearer the tip of the snout than the eye; interorbital space broader than the upper eyelid. Limbs slender; stretched along the body, the fore limb extends beyond the vent with the length of the fourth finger, the hind limb marks the middle of the eye with the tibio-tarsal articulation. Fingers slightly webbed at the base, first very short; toes nearly entirely webbed, the last two phalanges of fourth toe free; inner toe very short, but perfectly distinct; no sub-articular, nor carpal, nor metatarsal tubercles. Skin perfectly smooth. Light pinkish grey above, vermiculated with broad black lines; a black streak from the tip of the snout, through the eye, along each side of the body to the groin; lower surfaces white, immaculate, except a few small black spots under the limbs. From snout to vent 34 millim.

A single ♀ specimen from Tanti.

32. *Hylodes conspicillatus*, Gthr.

Two specimens (♂ and young) from Milligalli, 6000 feet.

33. *Hylodes unistrigatus*, Gthr.

Eight specimens from the neighbourhood of Machachi (9000 to 10,000 feet), one from Chillo (9000 feet), and three from Hacienda of Olalla, plain of Tumbaco (8490 feet).

34. *Hylodes Whymperi*, sp. n.

Hylodes Whymperi, Blgr.

Habit of *Hyla arborea*.

Tongue oval, entire. Vomerine teeth in two oblique series behind the choanæ. Snout rounded, as long as the greatest orbital diameter, with distinct canthus rostralis; nostril nearer the tip of the snout than the eye; interorbital space a little broader than the upper eyelid; tympanum hidden. Fingers moderate, first shorter than second; toes moderate, quite free; disks and subarticular tubercles moderate; two metatarsal tubercles. The hind limb being carried forwards along the body, the tibio-tarsal articulation reaches the angle of the mouth. Skin of upper surface tubercular; on the back the tubercles are confluent into more or less distinct longitudinal lines; belly granulate. Dark olive-brown above (in one specimen with a few light spots); greyish or reddish brown, immaculate or marbled with dark brown, beneath; upper lip whitish. In the specimen from the valley of Collanes and in that from the mountain Cotocachi the front and hinder sides of the thighs are tinged with magenta red. From snout to vent 27 millim.

H. Whymperi resembles *H. unistrigatus* in general appearance; but the latter has a distinct tympanum, larger digital

expansions, the skin smooth, or nearly smooth, above, and a strong fold across the chest.

Two specimens from Pichincha (11,000 to 12,000 feet), one from the valley of Collanes (12,500 feet), one from Cotacachi (13,000 feet), and two from Tortorillas, lower slopes of Chimborazo (13,200 feet).

Besides these three well-characterized *Hylodes* there are eleven very small specimens from Chillo, 9 to 15 millim. long from snout to vent, too young to be properly determined. Upon these Mr. Whymper observes, "This miniature species was first brought to my notice by an English resident; and he assured me that the largest of the specimens represents the full size of the species." This is evidently a mistake, as all the specimens prove to be young. They perhaps belong to a new species; but with the materials before me I will not venture to describe it.

35. *Bufo curuleostictus*, Gthr.

A male specimen. Nanegal, 4000 feet.

36. *Bufo marinus* (L.).

Two very young specimens, from near the bridge of Chimbo (1000 feet).

37. *Bufo crucifer*, Wied.

Two half-grown specimens, from Tanti.

38. *Nototrema marsupiatum* (Dum. & Bibr.).

Thirty-one specimens from the neighbourhood of Machachi, and eight from the neighbourhood of Hacienda of Antisana, 13,300 feet; six tadpoles from Pedregal, 11,600 feet.

Mr. Whymper informs me that the ground-colour was bright green. "These frogs were in great numbers at this locality (Machachi); and in the evening their music was so loud as almost to interfere with hearing when walking out."

APODA.

39. *Cecilia pachynema*, Gthr.

One specimen from Milligalli.

Maxillary teeth 5, mandibular 4, vomero-palatines 6; circular folds 160. Unspotted.

The following is a list of the papers treating especially of the herpetological fauna of Ecuador:—

A. Günther, "Lists of the Cold-blooded Vertebrata collected by Mr. Fraser in the Andes of Western Ecuador," Proc. Zool. Soc. 1859, pp. 89, 402-420, pl. xx.

E. D. Cope, "An Examination of the Reptilia and Batrachia obtained by the Orton Expedition to Ecuador and the Upper Amazon, &c.," Proc. Ac. Philad. 1868, pp. 96-119.

Also Orton "Contributions to the Natural History of the Valley of Quito: Reptiles," Amer. Natur. 1871, v. p. 693.

J. de la Espada, 'Viaje al Pacifico, Vertebr., Batr. an.' Madrid, 1875, 4to, 208 pp. 7 pls. Preliminary Diagnoses of the new species have been published in Journ. Sc. math. phys. e nat. Lisb. ix. 1870, pp. 58-65, and An. Soc. Esp. i. 1872, pp. 85-88.

G. A. Boulenger, "Reptiles et Batraciens recueillis par M. E. de Ville dans les Andes de l'Equateur," Bull. Soc. Zool. France, 1880, pp. 41-48, and P. Z. S. 1881, pp. 246 & 247, pl. xxvi.

A. W. E. O'Shaughnessy, "On the Collection of Lizards made by Mr. Buckley in Ecuador," P. Z. S. 1880, pp. 491-493, pl. xlix., and 1881, pp. 227-245, pls. xxii.-xxv.

LIV.—*Charles Darwin*. By M. DE QUATREFAGES*.

AT the last meeting our honourable President was good enough to give me notice that he would call upon me to-day to say a few words with reference to the scientific labours of Darwin. I could only answer that he was imposing upon me a very difficult task, and that it is not in a short note that one can

* Translated from the 'Comptes Rendus de l'Académie des Sciences,' 1st May, 1882, pp. 1216-1222. We have thought that a translation of this memoir, although it contains little that has not appeared in many notices of the great English naturalist, might be of interest to our readers for several reasons. It is not only an expression of opinion upon Darwin's character and work by a distinguished foreign zoologist; but it was prepared at the special request of the President of the French Academy of Sciences; and some parts of it are of particular interest in connexion with the fact of Darwin having been rejected as a Correspondent of the Institute, although subsequently elected. Further, M. de Quatrefages, with many French naturalists, stood in opposition to the theory of the origin of species by descent with modification, as enunciated by Darwin; and we have here a brief exposition of his views upon this subject, and side by side with this a statement of those considerations which seem to him to establish the preeminent merit of the great philosopher whose loss is here commemorated, quite independently of the acceptance or rejection of his theory.